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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/550,020	09/20/2006	Toshio Goto	278709US26XPCT	3818

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OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER

AHMED, SHAMIM

ART UNIT	PAPER NUMBER
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1792

NOTIFICATION DATE	DELIVERY MODE
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04/14/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/550,020	Applicant(s) GOTO ET AL.	
	Examiner Shamim Ahmed	Art Unit 1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 December 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) 6 and 7 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5,8-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-5 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-2 and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by Tsukasa et al (JP2001-237212 A).

Tsukasa et al disclose a process of surface flattening of a semiconductor device substrate including the step performing plasma processing while supplying liquid chemical such as pure water onto the substrate (see the abstract and the paragraphs 0014, 0015 and 0018 of the translated version of the reference).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 3 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsukasa et al (JP2001-237212 A) as supported by Okudaira et al (4,705,595).

Tsukasa et al discusses above in the paragraph 3 but fails to explicitly teach that the plasma includes radicals, positive or negative ions based on the plasma are selectively supplied to the substrate.

However, it would have been obvious to include radicals, positive or negative ions in Tsukasa et al's plasma because by definition, plasma includes ions and radicals as supported by Okudaira et al.

Okudaira et al illustrates that an etching process by plasma, it is known that "ions" in plasma and "radicals which are neutral particles, but also are reactive species" usually react with the sample (col.3, lines 65-col.4, lines 5).

As to claim 5, it is obvious that radicals are supplied with high-speed in a plasma etching process as neutral radicals has slow reaction if only neutral radicals are present as suggested by Okudaira et al.

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7. Claims 8-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsukasa et al (JP2001-237212 A) in view of Ito et al (5,270,259) and Demmin et al (6,635,185).

Tsukasa et al discusses above in the paragraph 3 but fails to teach the claimed pressure range during the process.

However, Ito et al teach the typical pressure range is 1-5 Torr of oxygen plasma during ashing process (col.1, lines 65-col.2, lines 1-5).

Therefore, it would have been obvious to one with ordinary skill in the art to employ Ito et al's teaching to optimize the same in the method of Tsukasa et al as additionally taught by Demmin et al, wherein , Demmin et al teaches, beginning at col.7, line 15:

As is well known, there are many operating conditions of 15
a plasma etching process that can have an effect on the
results obtained. These conditions include, for example, the
type of plasma etching (for example, reactive ion etching,
plasma etching, and high-density etching), etching compo-
sition flow rate, wafer temperature, pressure, power, time, 20
and bias. The interrelationship of these parameters is a
function of the hardware configuration and the material
being etched. One skilled in the art of plasma etching and
cleaning can vary these parameters accordingly to etch a
desired material satisfactorily. Exemplary operating condi- 25

Therefore, it would have been obvious to one with ordinary skill in the art to optimize the same in the method of Tsukasa et al because Demmin teaches that changing the parameters according to the material being etched appears to reflect a result-effective variable which can be optimized. See MPEP 2144.05 IIB.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shamim Ahmed whose telephone number is (571) 272-1457. The examiner can normally be reached on Tu-Fri (12:30-10:30) Every Monday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine G. Norton can be reached on (571) 272-1465. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Shamim Ahmed/
Primary Examiner, Art Unit 1792

SA
April 8, 2008